The Canadian Entomologist.

LXXI GUELPH, DECEMBER, 1939 No. 12

NEW SPECIES OF GEOMETRIDAE WITH NOTES, II*

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Hydriomena albimonata n. sp.

Male. Palpi extremely short and stubby. Antennae slightly compressed laterally but not particularly thickened. Primaries light smoky gray, sprinkled with deeper smoky. Basal space light gray, bordered outwardly by a strong black oblique line which is angled rather sharply below costa and then somewhat concave outwardly to vein 1, ending in a small black spot on inner margin. The following antemedian area is somewhat darker gray than the basal area and crossed by an indistinct and irregular purple-brown band, angled inward on vein 1; the outer margin is formed by an oblique, black, slightly scalloped line, in general parallel to that bordering the basal space. The postmedian space is the same pale gray color as the basal space and is considerably narrowed above inner margin and crossed by black lines on the veins; its outer margin is defined by a very irregular black line, angled below costa and strongly indented opposite discal dash, then descending, more or less perpendicularly, to inner margin in a series of scallops between the veins, that between veins 2 and 3 projecting less than the others. Terminal space similar in color to antemedian one, crossed by a purple-brown subterminal band and with two transverse parallel, subapical, black streaks, the lower one touching the postmedian line, the upper arising from outer edge of subterminal band. A series of short, geminate black dashes bordering the veins terminally and a fine terminal dark line. Fringes smoky with a fine pale line at base. Secondaries pale smoky, slightly darker terminally; a small dark discal dot, a faint smoky postmedian line, angled rather sharply on vein 2 and a still fainter subterminal line, parallel to postmedian one, midway between it and outer margin; a fine dark terminal line and concolorous fringes. Beneath, primaries light smoky, secondaries whitish, paler than above.

Female—Similar to male, but palpi slightly longer.

Expanse 32-34 mm.

Holotype—♂, White Mts., Ariz., June 15, 1935, (G. and J. Sperry); No. 4926 in the Canadian National Collection, Ottawa.

Allotype—♀, same data, June 20.

Paratypes—5 ♂, 1 ♀, same data, June 15-19; 1 ♂, White Mts., Ariz., June 18, 1935, 9000 ft. elevation. Three of these will be deposited in the Sperry Collection and one in the Los Angeles Museum.

There is also a worn male in our collection from Banff, Alta., June 14, 1922, (C. B. Garrett) which appears to belong here.

The species is in general very similar to *irata* v. *quaesitata* B. & McD., but separable by the short stubby palpi which seem very similar to those of what I am calling *henshawi* Swett. In the male genitalia the forked Uncus is of the same type as that of *irata* but the V-like excision between the prongs is deeper and narrower and the neck in consequence somewhat shorter.

*Contributions from the Division of Entomology (Systematic Entomology), Department of Agriculture, Ottawa.

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Hydriomena furtivata n. sp.

Allied to *arizonata* B. & McD., but with primaries less heavily shaded with brown, with less black along inner margin, and with a differently shaped black subbasal line.

Male. Palpi rather slender, moderate in length. Antennae laterally compressed and moderately thick. Primaries with basal space light grayish white, bordered outwardly by a very oblique and prominent black line, faintly outwardly angled on cubitus and then gently concave to middle of inner margin, ending in a small black spot. Antemedian band purplish brown, showing traces of a darker, purplish, irregularly angled band in its median area; its outer edge is formed by a blackish, lightly irregular line, in general subparallel to subbasal line, with slight indent opposite cell and a stronger inward scallop above vein 1, which shows traces of blackish shading. Postmedian band pale and similar in color to basal area, in general upright and considerably narrowed above inner margin; its outer edge formed by a black line, strong below costa and outwardly oblique, then forming a deep triangular indentation opposite cell and descending below vein 4 to inner margin at anal angle in a series of weak scallops; veins crossing pale area lightly outlined in black; discal spot not evident. Terminal area somewhat darker than preceding space and crossed by a purplish band bent inward at costa and otherwise rather close to outer margin. The usual black subapical streaks and geminate dashes along outer margin. Fine terminal dark line. Fringes pale smoky, faintly checkered. Secondaries pale smoky with small dark discal dot and the usual angled postmedian and subterminal smoky lines crossing wing; faint smoky terminal line with indications of the geminate streaks of primaries. Beneath, primaries pale smoky, secondaries whitish with discal dot, postmedian line and terminal line better defined than on upper side. Expanse 28-30 mm.

Holotype—♂, White Mts., Ariz., May 26, 1934; No. 4927 in the Canadian National Collection, Ottawa.

Paratypes—2 ♂, same data; 2 ♂, Hannagan's Meadow, White Mts., Ariz., May 26, 1934, (G. and J. Sperry); 3 ♂, White Mts., Ariz., June 19, 1935, (G. and J. Sperry); 1 ♂, Alpine, Ariz., June 17, 1936, (G. and J. Sperry). Two of these will be deposited in the Sperry Collection and one in the Los Angeles Museum.

In the male genitalia the Uncus is quite similar to that of *arizonata* but the neck is slightly thicker and the apices of the prongs are laterally compressed and bent downward and inward toward each other. It is a smaller species with somewhat shorter palpi than *perfrgeta* Swett which also occurs in the White Mts., Ariz.; it also shows none of the ruddy shading found in this species.

Eupithecia sperryi n. sp.

Male. Antennae very finely ciliate; triangular groups of scales at joints jut over the edges and give a slightly serrate appearance. Palpi smoky gray, rather short and stubby, projecting only a short distance beyond the smooth, oblique front. Primaries pale creamy white, the most prominent feature of maculation being a large blackish discal dot contained in a brownish, rather poorly defined median band, the inner edge of which is gently rounded and the outer edge bulging opposite the cell, both edges defined on costa by small brown patches. Costa at base brown, the dark color extending inward to cubital vein; another small dark patch midway between basal area and inner patch of median band, giving rise to a poorly defined, pale brownish cross-line. Apical area with brown patch, extending to midway along outer margin and cut by a fine white s. t. line. More brown shading at anal angle. Fringes faintly checkered. Secondaries smoky white with darker shading along outer margin and small dark discal dot. Beneath shiny smoky-white with the costal

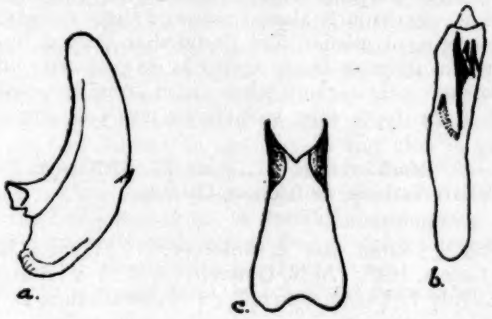
maculation of upperside of primaries partially showing; secondaries show traces of median and subterminal curved lines, as well as a small discal dot. Expanse 12-15 mm.

Holotype—♂, Greer, Ariz., June 11, 1936, (G. and J. Sperry); No. 4928 in the Canadian National Collection, Ottawa.

Paratypes—1 ♂, Greer, Ariz., June 9, 1937; 2 ♂, White Mts., Ariz., June 27, 1935; 1 ♂, Wildcat Creek, White Mts., Ariz., June 13, 1937; 1 ♂, Alpine, Ariz., June 17, 1936, all collected by G. and J. Sperry. Some of these will be deposited in the Sperry collection.

In the male genitalia the clasper is characterized by the presence of a small spinous projection about the middle of the ventral margin; the thin aedeagus is armed with three superimposed cornuti.

This delicate little species has a slight resemblance to *perbrunneata* Taylor but is readily distinguished on genitalic characters. I dedicate it to its collectors.



Eupithecia sperryi n. sp. a. Male clasper, b. Aedeagus, c. Ventral plate.

Xanthorhoe baffinensis n. sp.

Belongs, according to genitalia, close to *fossaria* Tayl.

Male. Antennae bipectinate, but the pectinations shorter than in *fossaria* and more as in *macdunnoughi*. Palpi, head and thorax deep smoky, intermingled with whitish. Primaries deep smoky-gray with darker basal and median areas and the usual maculation of the group. The outer margin of the dark brown basal area is angled inward shortly at costa; the inner margin of the dark brown median band is gently curved outward below costa, the outer margin is rather irregular, forming a blunt outward angle in the interspace between veins 3 and 4 and then inwardly oblique to inner margin, the width of band at this point being only half that at the costa; a very prominent dark discal dot is included in the band. Subterminal line forming a series of dark scallops, margined outwardly with pale.

Secondaries rather deep smoky, with prominent discal spot and two or three pale wavy lines crossing wing in the postmedian area. Beneath paler than above with discal dots prominent on all wings and maculation of upper side reproduced more faintly. In the genitalia the uncus is short and rather stubby as compared with the long, thin uncus of *fossaria*. The heavily chitinized costal portion of the claspers is reminiscent of *fossaria*, showing the strong, pointed tooth midway along the margin; this, however, is preceded by a prominent, semicircular excavation not found in *fossaria*. The apex, furthermore, is less flatly spoon-shaped and is only very faintly spiculate, showing none of the small teeth on inner surface found in *fossaria* and there is an additional small projection on outer edge, just below apex, lacking in the other species.

Holotype—♂ Lake Harbour, Baffin Is., July 12, 1936; No. 4927, 1 in the Canadian National Collection, Ottawa.

ENNOMINAE

Drepanulatrix columbiaria n. sp.

Antennae strongly bipectinate, the pectinations longer than in *carnearia* and *nevadaria*. Head and thorax light pinkish. Primaries heavily sprinkled with light pinkish over a pale ochreous base, shaded with pale orange, and with a strong purplish suffusion, bordered inwardly by smoky patches, terminally (this suffusion is frequently missing). Three subparallel and nearly equidistant, deep pink lines cross the wing, the inner two being rather rigidly upright, the outer showing (generally) a slight incurve below cell; a small black discal dot, generally surrounded by a pale ring of the ground color is situated in the cell on the middle line. The orange shading is most intense in the outer half of wing, especially beyond the third line. A terminal series of fine black dashes. Fringes purplish pink. Secondaries whitish, sprinkled lightly with smoky speckles, particularly along outer and inner margins; traces, especially above inner margin, of median and postmedian curved lines; a small black discal dot; a terminal series of black dashes as on primaries but fainter; fringes concolorous. Beneath pale creamy white, with terminal shading of primaries showing through from upper side; secondaries much as above. Expanse 25-30 mm.

Holotype— ♂, Peachland, B. C., June 27, 1935, (A. N. Gartrell); No. 4929 in the Canadian National Collection, Ottawa.

Allotype— ♀, same data.

Paratypes—3 ♂, same data as holotype; 3 ♂, 1 ♀, Okanagan Mission, Kelowna, B. C., June 4, 1935, (A. N. Gartrell); 2 ♂, 1 ♀, Shingle Cr. Keremeos, B. C., June 9, 20, July 7, (A. N. Gartrell); 1 ♂, Penticton, B. C., June 7, 1933, (J. McDunnough).

The species is closest to *lutearia* B. & McD. and had indeed been, until recently, identified by me as this species. It lacks, however, the costal thickening of the cross-lines on primaries and the pinkish suffusion of secondaries and shows further distinct smoky sprinkling on outer half of secondaries. The amount of purplish suffusion in outer portion of primaries is very variable; the holotype and allotype show it to a marked degree but in several of the paratypes it is greatly reduced.

Semiothisa errata n. sp.

Very similar to the Texan *punctolinedta* Pack. and has generally passed as this species. The dots on the postmedian line of both wings, to which *punctolineata* owes its name, are scarcely noticeable in the present species and the line itself is more rigid and shows little of the small scallops found in Packard's species, especially on underside of hindwings. The color of wings is a light ochreous, very variably sprinkled over with brown speckles which at times are so dense (holotype) as to give a general impression of a brown coloration. The terminal area on both wings is most suffused and forms a dark band bordered inwardly by the postmedian line; paler specimens are much the color of *punctolineata* with little, however. of the yellowish tinge, and a dark patch resting on the postmedian line in its central area may or may not be present.

Holotype— ♂, Gila-Pinal Co. Line, Ariz., May 15-20, 1925, (O. Poling); No. 4930 in the Canadian National Collection, Ottawa.

Allotype— ♀, same data.

Paratypes—2 ♂, same data; 1 ♂, same locality and collector, May 1-15, 1925; 1 ♂, Baboquivari Mts., Ariz., June 15-30, 1923, (O. C. Poling).

This may eventually prove to be merely the Arizona race of *punctolineata* but in any case it seems best to distinguish it by a name.

Semiothisa burneyata n. sp.

Female. Primaries an even light purple-brown with the three cross-lines very indistinct. T. p. line best defined, consisting of a fine brown line, almost upright, with only a very faint bend outward below costa. Other lines obsolescent, in general parallel to t. p. line. Secondaries paler brown with slight dark streak from inner margin at two-third and no discal dot. Terminal line on both wings very fine and scarcely noticeable; fringes smoky. Beneath primaries silky gray-brown, much paler than above; secondaries sprinkled with brown atoms over a cream-colored base. Expanse 25 mm.

Holotype—1 ♀, Burney Mt., Shasta Co., Calif., August 14; No. 4934 in the Canadian National Collection, Ottawa.

Seems closest in general coloration to *muscariata* Gn., as I identify it, but this is a larger species with better defined cross-lines and a somewhat more sinuate t. p. line.

A group of species, formerly included under *Phasiane* but now placed in *Semiothisa,* is characterized in the male genitalia by the presence of a spined, finger-like process arising from the thin aedeagus on the left side, subapically. Besides the less closely related *delectata* Hlst. the group includes the eleven species in the 1938 Check List from *septemberata* B. & McD. to *curvata* Grt., with the possible exception of *maricopa* Hlst., a species unknown to me. Most of these species are very similar in maculation and also in general characters of the genitalia but may be separated by certain minor structural details of this organ, notably in the apical portion of the produced sacculus and where it connects with the free costal arm. A detailed study of our material has disclosed a couple of apparently undescribed species which I name as follows:

Semiothisa pertinata n. sp.

Very similar to *setonana* McD. in color and maculation but considerably smaller.

Male. Antennae finely ciliate. Palpi very short, chunky, gray-brown. Front brown, shaded with ochreous. Collar and thorax an admixture of purple-gray and whitish scaling. Primaries rather unicolorous brown, striate with whitish in the median area and faintly so subterminally; crossed by two strong blackish lines and a third, median one which is much fainter. T. a. line gently rounded and incurved to inner margin; t. p. line straight (or very slightly outcurved) from costa to vein 6, then gently incurved to inner margin; median line arising from dark costal blotch, runs just inside a faint discal dash and either approaches (holotype) t. a. line above inner margin (as in *excurvata*) or bisects approximately (paratype) the median area. S. t. line indicated by dark, triangular shade on costa before apex and faint white striations crossing wing to anal angle. A broken dark terminal line and a pale line at base of the concolorous fringes, which are feebly checkered. Secondaries somewhat paler than primaries, almost immaculate, with faint indications of ante- and post-median lines, arising from a deeper shade on inner margin. A minute discal dot and a broken dark terminal line. Pale line at base of fringes as on primaries. Beneath primaries dull leaden, paler along costa, with maculation of upper side partially showing through; secondaries heavily sprinkled with white scaling across which are indications of the two usual lines and (in paratype) some subterminal dark shading. Shading. Expanse 25 mm.

The genitalia are closest to those of *nigroalbana* Cass. and *setonana* McD. The apical portion of the sacculus is, however, broader and less produced and its upper edge is furnished with more and stronger small teeth. The free costal arm is distinctly shorter than in its allies.

Holotype—♂, Jefferson Co., Mont., Aug. 8, 1928; No. 4931 in the Canadian National Collection, Ottawa.

Paratype—1 ♂, same data.

Semiothisa napensis n. sp.

Male. Very similar to preceding species in maculation, but ground-color deeper brown, especially beyond t. p. line. T. a. line very thick and almost upright; t. p. line sinuate much as in *pertinata;* median line only indicated by a short vertical dash on costa. Discal streak very faint and short. Secondaries lighter brown than primaries, rather even in coloration, with small discal dot and short dark streak slightly beyond middle of inner margin. Expanse 25 mm.

In the genitalia the sacculus is strongly produced apically and narrowed almost to a point; the raised ridge running parallel to ventral edge of sacculus is reduced to a triangular prominence about midway between base and apex; the dorso-apical margin of sacculus is only weakly spinous and the edge connecting this area with the base of the costal arm is irregularly dentate. Costal arms longer and narrower than in allied species.

Holotype—♂, Napa, Napa Co. Calif., Sept. 17, 1928, No. 4932 in the Canadian National Collection, Ottawa.

Semiothis sirenata n. sp.

Male. Palpi light brownish. Front and antennae ochreous. Thorax purplish gray. Primaries pale ochreous-brown, due to a heavy sprinkling of brown scales on a creamy base. The three cross-lines are poorly defined, light brown, arising from small, outwardly oblique dashes on costa; in general their course is parallel to each other and slightly inwardly oblique, the t. a. and median lines being faintly wavy and the t. p. rather rigid. A fine brown discal streak. Beyond t. p. line the subterminal area is somewhat darker than remainder of wing. A series of minute dark terminal dots. Fringes concolorous. Secondaries much the same color as primaries. Faint curved brown ante- and postmedian lines and an indistinct darker subterminal shade. A small, but distinct black discal dot. Obsolescent terminal dark dots. Beneath, the basal two-thirds of wings are whitish, sprinkled with pale brown and with small dark discal dots. The outer third is composed of an indistinct darker border, considerably tinged with ochreous.

Female. Paler than the male with less brown sprinkling and a slightly more ochreous hue. The t. p. line opposite cell shows a short dark streak, beyond which in subterminal area is a faint patch of darker scaling. On the underside the ochreous shading of the terminal band is more pronounced. Expanse 20 mm.

Holotype—♂, Baboquivari Mts., Ariz., June 15-30, 1924, (O. C. Poling); No. 4933 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—1 ♂, 2 ♀, same data; 1 ♂, same locality, Apr. 28, 1938, (G. and J. Sperry).

There is also a darker, more suffused male before me from Palm Springs, Riverside Co., California which on genitalic characters belongs here. According to male genitalia the species is closely allied to the Texan *flaviterminata* B. & McD. Both species show asymmetrical claspers, the right one being strongly bifid apically whilst the left one is pointed; the costal arms are broad and sinuate; the aedeagus shows a basal finger-like projection and is broadly enlarged apically. In *flaviterminata* this enlargement is rectangularly club-shaped with several strong spines whilst in *sirenata* it is subtriangular, one edge drawn out to a short point and the other bluntly rounded.

Semiothisa irrorata var. **venosata** var. nov.

Typical *irrorata* Pack., described and figured in Packard's Monograph from San Diego, Calif., is a pale luteous-purple species with broad creamy t. p. line. In the northern portion of its range on the Pacific coast it appears to have developed into a race, differing as follows:

Wings light purplish gray, without any luteous shades. On primaries terminal area beyond t. p. line, deeper in color and frequently with irregular smoky shades, defining inwardly an obscure s. t. line. *Veins, especially in terminal area, finely outlined in creamy.* T. a. and median lines very obscure; t. p. line dark, bent outward at costa and bordered inwardly by a narrow pale ochreous line. Secondaries similarly colored to primaries with usual indications of the postmedian line. Beneath pale whitish, heavily sprinkled with smoky. Expanse 25-29 mm.

Holotype—♂, Summerland, B. C., Aug. 21, 1935, (A. N. Gartrell); No. 4936 in the Canadian National Collection, Ottawa.

Allotype—♀, Penticton, B. C., May 24, 1921, (W. B. Anderson).

Paratypes—1 ♂, Summerland, B. C. July 23, 1931, (A. N. Gartrell); 1 ♂, Keremeos, B. C., May 8, 1923, (E. R. Buckell).

Semiothisa decorata arubrescens var. nov.

Typical *decorata* Grossb. from Utah shows considerable pinkish suffusion over primaries. In southern British Columbia we meet with a form which, while agreeing in maculation with the figure given in the B. & McD. "Contributions" (1916, III, Pl. XIV, fig. 7) is *entirely light smoky gray* with deep smoky subterminal shadings. Similar specimens from S. Alta. (Lethbridge) and Montana (Jefferson Co.) are also before me, the constant character of the coloration suggesting an undescribed race for which I propose the above name. It might be noted that in a portion of our series a distinct fine terminal spine on the inner side of the fore tibia is evident, generally hidden by scaling; in other specimens it is only slightly indicated and in other lacking, the character being rather evanescent.

Holotype—♂, Kamloops, B. C., May 12, 1937, (J. K. Jacob); No. 4937 in the Canadian National Collection, Ottawa.

Allotype—♀, same data, May 13.

Paratypes—7 ♂, 1 ♀, same data, May 12-13, June 14; 1 ♂, Nicola, B. C., July 26, 1922, (P. N. Vroom); 1 ♀, Summerland, B. C., May 30, 1921, (A. N. Gartrell).

A form of this race, similar to that found in allied species, in which the heavy black shading on the t. a. and t. p. lines is lacking and the lines in consequence obsolescent, occurs along with the topotypical form. For this the form name SUFFUSATA may be used.

Holotype—♂, Kamloops, B. C., May 12, 1937, (J. K. Jacob); No. 4938 in the Canadian National Collection, Ottawa.

Paratypes—3 ♂, same data, May 12, 14; 2 ♂, Summerland, B. C., May 21, 24. (A. N. Gartrell); Oliver, B. C., May 4, 1923, (C. B. Garrett).

Allied to the preceding is a small group of three species, apparently unnamed, in which a well-defined, terminal, fore-tibial spine appears to be constantly present. As in all other characters, including genitalia, the species belong in the *decorata-meadiaria* group, I cannot consider the presence of this spine to have any generic value, although specifically of considerable use.

Semiothisa vernata n. sp.

Very similar in coloration of primaries to *decorata arubrescens* but with a slightly browner tinge to the gray. T. a. and t. p. lines heavily black, the former obsolescent in costal half of wing, the latter with less of an incurve below cell than in *decorata,* shaded inwardly by a narrow creamy shade (at times faintly pink-tinged) and outwardly by a broad smoky shade which continues upward to costa just before apex. This shade is bordered by an obsolescent pale s. t. line. A small dark discal ringlet and a fine broken black terminal line. Fringes concolorous, weakly checkered and with a fine pale

line at base. Secondaries with small, dark discal dot and blackish postmedian line, not attaining costa; outer margin and fringes as on primaries. Beneath heavily suffused with brown over a pale ground-color; maculation of upper side of primaries more or less visible. Secondaries with discal dot, postmedian line and diffuse subterminal shade band. Expanse 25 mm.

Holotype—♂, Brownsville, Tex., Feb. 17, 1937, (T. N. Freeman); No. 4939 in the Canadian National Collection, Ottawa.

Allotype—♀, same data, Mar. 7.

Paratypes—5 ♂, 5 ♀, same data, Feb. 1, 9, 17, Mar. 4, 7, 13, 19.

Apparently close in maculation to *fieldi* Swett which, however, according to my information, is without the tibial spine.

The male genitalia show great resemblance to those of *arubrescens* but are without the curved spine at base of costa; the gnathos is longer and more pointed; the octavals of the eigth segment are more weakly chitinized and the excavation more broadly U-shaped.

Semiothisa spinata n. sp.

Structurally similar to the preceding species but considerably smaller in size. Both primaries and secondaries are of a rather bright ruddy-brown, shaded broadly with smoky in the subterminal area of primaries. Crosslines rather fine and indistinct, especially the t. a. and median ones; they are of a deep pink shade. T. a. line outwardly angled below costa and then slightly inwardly oblique to inner margin, generally (but not always) bordered by a dark line inwardly in lower half of wing. Median line faintly irregular, passing through the small smoky discal ringlet. T. p. line best defined of the three and frequently edged outwardly by a deep brown line, obsolescent at costa but increasing in width toward inner margin; it is slightly bent outward below costa and then almost rigidly oblique to inner margin. The smoky subterminal area is bordered outwardly by a faint, pale, s. t. line. Faint, dark, broken, terminal line and a pinkish line at base of concolorous fringes. Secondaries more or less concolorous with primaries with curved ante- and postmedian brown lines visible on inner half of wing and traces of smoky subterminal shading. Fringes as on primaries. Dark discal dot rather prominent. Beneath heavily sprinkled with luteous-brown over a pale ground color and with the maculation of upper side more or less repeated in dulier shades. Expanse 22 mm.

Holotype—♂, Lugert, Okla., July 7, 1937, (Standish-Kaiser); No. 4940 in the Canadian National Collection, Ottawa.

Allotype—♀, Thomas, Okla., July 10, 1937, (Standish-Kaiser).

Paratypes—1 ♂, Lebanon, Okla., July 2, 1937; 1 ♀, Sayre, Okla., July 8, (Standish-Kaiser).

Evidently closely allied to *puertata* Grossb.

The male genitalia are very similar to those of the preceding species but the excavation of the octavals is deeper and slightly narrower; the apical portion of the sacculus is narrower and not so squarely cut off and the triangular projection between it and the base of the costal arm is longer and more pointed.

Semiothisa indeterminata n. sp.

Structurally similar to the two preceding species, the tibial spine being strongly developed. Wings heavily sprinkled with deep flesh-color over a pale base and with faint smoky shading in the subterminal area. Cross-lines very faint and indeterminate, dull smoky in color. T. a. line angled outwardly below costa and then inwardly oblique; median line gently sinuate and crossing the small discal ringlet; t. p. line gently sinuate, arising from small dark patch on costa, curved outward to vein 6, then more or less parallel to outer margin with a slight incurve in fold, tinged with pinkish and with fine dark dots on the veins. Pale s. t. line faintly traceable by the difference in color between the

subterminal and terminal areas. Terminal broken black line and a fine pinkish line at base of the smoky, slightly checkered fringes. Secondaries paler at base, the flesh-color shading increasing outwardly and intermingled subterminally with slight smoky sprinkling. A fine dark discal dot and fringes as on primaries. Beneath lacking the pink shades of upper side, the sprinkling being ochreous-brown; scarcely any indication of maculation except the discal spots. Fringes as above but more distinctly checkered. Expanse 23-25 mm.

Holotype—♂, Stillwater, Okla., May 29, 1937, (R. W. Kaiser); No. 4941 in the Canadian National Collection, Ottawa.

Paratypes—3 ♂, Taloga, Okla., June 6, (Standish-Kaiser); 2 ♂, Lugert, Okla., June 11, (Standish-Kaiser).

A specimen from Plattsmouth, Nebraska is also before me, rather larger and grayer than the types, but similar according to genitalia.

The genitalia differ from those of the preceding species in the more rounded nature of the sacculus apex, the shorter triangular prominence, which, however, bears a more definite apical spine and the broader and blunter gnathos. The octavals are more strongly chitinized apically and the excavation is much deeper.

Protitame gen. nov.

Genotype—Cymatophora matilda Dyar.

According to the male genitalia the species of the *matilda* group, placed at present in *Itame,* scarcely belong here; the general type of maculation would also indicate that a separation from the large group of very homogeneous species comprising *Itame* is advisable. The main distinctive features are as follows:

Palpi *very short,* not attaining front. Male antennae with the pectinations *short and claviform.* In the male genitalia the free costal arms are *narrow and sinuous,* the apices directed downward; the sacculus is drawn out into a long, upcurved point; the aedeagus is long, the vesica armed with a strong apical cornutus and a lunate group of small spines at base; there are *no octavals.*

Besides *matilda* Dyar the new genus includes *subalbaria* Pack., *hulstiaria* Tayl., *virginalis* Hlst., probably *pallicolor* Dyar and the following two apparently undescribed species.

Protitame discalis sp. nov.

Head pale with the usual dark cross-band below the antennae. Primaries white with a faint ochreous tinge; costa sprinkled with brown. T. a. line faint, brown, arising from a small brown patch on costa, gently outcurved. Median line obsolescent (when present passing through discal dash). T. p. line situated subterminally as in *matilda,* well-defined, faintly irregular, brown, expanding to a small patch on costa. Faint traces of a brown terminal line. Discal streak brown, very distinct. Fringes pale. Secondaries with discal streaks and t. p. lines as on primaries. Beneath pale with the maculation of upper side faintly reproduced. Expanse 18 mm.

Holotype—♂, Okemah, Okla., July 18, 1937, (Standish-Kaiser); No. 4955 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—♂, Thomas, Okla., July 10, 1937, (Standish-Kaiser).

The material is not in the best of condition and it is possible that the cross-lines are better defined in more perfect specimens. The four short discal dashes and the distinct t. p. line are the most prominent features of the maculation.

The male genitalia conform to the usual pattern and are closest to those of *hulstiaria* Tayl. differing in the rather greater length of the pointed sacculus extension and the finer and smaller nature of the 7 or 8 spines forming the basal lunate group in the vesica.

Protitame albescens n. sp.

Slightly larger than the preceding species and with the wing color purer white. Costa suffused with brown at base. Cross-lines brown, very indistinct, the arrangement much as in *subalbaria* Pack., the median line on primaries being considerably closer to the t. p. line than was the case in the preceding species. Discal dot faintly evident on secondaries only. Beneath white with a small discal streak on primaries and a dot on secondaries. Expanse 20 mm.

Holotype—♂, Taloga, Okla., June 6, 1937, (Standish-Kaiser); No. 4956 in the Canadian National Collection, Ottawa.

In the genitalia, as compared with those of the preceding species, the apical portion of the sacculus is broader and less drawn out to a fine point, the costal arms are somewhat stouter and the lunate patch of spines in the vesica reduced to three stouter spines and a partial fourth one.

Included at present in *Semiothisa* are several species which possess a type of male genitalia very similar to those of *Protitame* species and differing in consequence from the other species contained in the genus very considerably. I believe a generic separation is warranted and propose the new term:

Prophasiane gen. nov.

Differs from *Protitame* in the longer palpi, the ciliate male antennae and the hair-pencil on the thickened male hind tibia. The genitalia are essentially of the same type as found in *Protitame* but the aedeagus is thin, pointed and unarmed.

Genotype—Semiothisa octolineata Hlst.

Mendicata Hlst. belongs here and possibly also *tenebrosata* Hlst. and *flumenata* Pears., of which I have had no opportunity of examining the genitalia.

THREE NEW SPECIES OF NEARCTIC ROVE BEETLES FROM THE PACIFIC COAST (COLEOPTERA, STAPHYLINIDAE)*

BY HUGH B. LEECH
Vernon, B. C.

Trigonodemus fasciatus n. sp.

Male. Length (anterior margin of labrum to posterior margin of elytra) 4.0 mm.; width 1.8 mm. Body feebly convex. Head dark reddish-brown, labrum and ocelli paler; first four segments of antennae pale reddish-brown, five to eleven tinged with piceous; scutellum and disc of pronotum reddish-brown, sides of latter paler; elytra black, except the following areas which are reddish-yellow: basal third and along suture, and an irregular oblique fascia extending inward and posteriorly from the margin at middle almost to the suture at apical fourth, narrowly connected laterally with the basal area; apices of elytra vaguely paler. Body beneath reddish, metepisterna and sides of metasternum piceous, punctate inner margin of epipleurae black; abdominal sternites paler laterally; legs and epipleurae pale yellow.

Head two-thirds as wide as pronotum and slightly longer; coarsely irregularly punctate except medially, and with a single large puncture on the median line, just anterior to the ocelli; with a deep oblique impression between each compound eye and the median line. Antennae with the first four segments glabrous except for a few tactile hairs, third segment twice as long as second, fourth almost orbicular; fifth to tenth enlarged, as wide as long, and covered with minute setae, eleventh similar but elongate.

Pronotum two-sevenths wider than long, feebly convex, slightly less than two-thirds as wide as elytra; anterior angles broadly rounded, posterior angles rectangular, base truncate; sides almost parallel in posterior half, with a narrow but clearly defined marginal bead extending from the anterior to the posterior angles; and with an impression at each side of disc at basal third; coarsely ir-

*Contribution from the Division of Entomology (Forest Entomology), Department of Agriculture, Vernon, B. C.

regularly punctate, punctures larger than those on head, but a little finer than those of elytral striae.

Elytra feebly convex, widest at middle; strial punctures coarser towards base, first and second series continued around the elytra apically; intervals very feebly convex, especially basally, the alternate intervals with a few small setose punctures. Metasternum finely irregularly punctate at middle, more coarsely so laterally; each epipleuron with a series of coarse punctures extending in an arc from inner margin near base, almost to apex.

Secondary sexual characters: anterior tibia of male strongly excavated and densely pubescent on apical half of posterior face.

Holotype: ♂, Vancouver, B. C., March 26, 1933. (Hugh B. Leech), flying; No. 4883 in the Canadian National Collection, Ottawa.

Paratype: ♂, Vancouver, B. C., March 16, 1939 (Agnes M. Gwyn), flying; in my collection, through the kindness of Professor G. J. Spencer of the Department of Zoology, University of British Columbia. Both specimens were collected on the University campus.

The only other described Nearctic *Trigonodemus* is *striatus* Leconte, of the eastern and south-eastern United States. In *striatus* each elytron has a broad longitudinal yellowish vitta extending from the humerus to the apical quarter, where it is closer to the suture than basally. In *fasciatus* each elytron is pale basally, and has an irregular oblique fascia extending from the margin at middle, inward nearly to the suture at apical fourth, resulting in a pattern very similar to that of a *Lathrimaeum* such as *pictum* Fauv. or *subcostatum* Mäkl. In addition, the head, pronotum and epipleurae are much more coarsely punctate in *fasciatus* than in *striatus*, and the elytral inter-spaces are more strongly convex.

Coprophilus sexualis n. sp.

Male: Length 4.7 mm.; width 1.1 mm. Body slender, feebly convex; integument polished, shining, irregularly punctate, very sparsely set with setae. Head black; mandibles and labrum reddish-brown; first three segments of the antennae rufescent, segments four to eleven black; pronotum and elytra dark reddish-brown, the former a little lighter, the latter with a paler band along the apical margin; abdomen piceous, the outer tergites rufescent apically. Undersurface piceous, the hypomera and the outer abdominal sternites apically, reddish-brown; legs reddish-brown, the femora darkest.

Head very slightly wider than pronotum (2.79 : 2.85), sides convergent basally from a point slightly behind the eyes, which are small, not prominent; punctation coarse and irregular on vertex except for a median smooth area, finer and more regular basally and at sides, front almost impunctate; gular sutures divergent, submentum and mentum very sparsely punctate. Antennal segments gradually expanded apically, seven to eleven covered with minute setae, all segments with a sparse vestiture of longer setae.

Pronotum four-fifths as wide as elytra, widest at apical fifth; sides finely crenulate, gradually divergent to apical fifth, thence a little convergent to base, hind angles slightly obtuse. Pronotal sculpture as follows: a shallow median longitudinal groove in anterior third, with a small rounded depression on each side of it, these two vaguely joined posteriorly to a larger rounded median depression which is followed immediately by a median smooth raised area extending almost to base; on each side of disc, extending to the narrow lateral beadings, there is a broad longitudinal depression, widest at the middle of its length; pronotum rather coarsely, irregularly punctate, punctures confined largely to the depressed areas.

Elytra slightly longer than broad, widest at apical four-fifths, shortest at suture; rounded laterally, marginal line weakly beaded and on the deflexed portion, thus not evident in a dorsal view; with six striae, impressed most stron-

ly on the disc, strial punctures somewhat irregularly placed, intervals convex, impunctate. Abdomen widest slightly beyond apical two-thirds, where it is four-fifths as wide as elytra; upper surface shining, reticulate, sparsely clothed with setae, lower less shining, more densely hairy; sixth apparent sternite unmodified. Anterior tarsi a little more broadly dilated than in the female, claws thicker, more strongly toothed and bent near base, especially the anterior claw; tibiae spinose on outer margin, the front pair most strongly so; pro- and mesotrochanters simple, metatrochanters elongated, reaching to beyond middle of femora, flattened dorso-ventrally towards apex (Figure 1); metafemora with a broad median tooth on hind margin. Male genitalia: parameres flattened, broadest at middle, bluntly pointed apically; aedeagus tubular, slightly curved, as long as parameres.

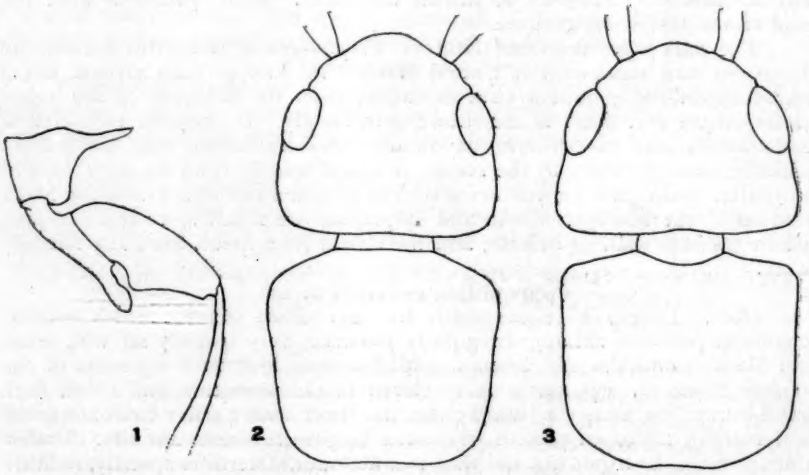


Fig. 1. Hind leg of *Coprophilus sexualis* n. sp., male, showing coxa, elongate trochanter, femur and tibia.

Fig. 2. Outline of head and pronotum (all setae omitted) of *Dacnochilus laetus* Lec.

Fig. 3. Same, *D. fresnoensis* n. sp.

Female: like male, except for lack of secondary sexual characters; metatrochanters simple; mandibles smaller than in male.

Holotype: ♂, Vancouver, B. C., March 20, 1939 (Anges M. Gwyn); flying in University woodlot; No. 4884 in the Canadian National Collection, Ottawa.

Allotype: ♀, same data, March 16; in the Canadian National Collection.

Paratypes: three, same data; 1 ♂, January 28; 1 ♂, March 16; 1 ♀, March 20. One male and one female in my collection, one male in that of the University of British Columbia. The specimens vary in length from 4.7 mm. to 3.0 mm., depending partly on the degree of extention of the abdomen, though the allotype is the smallest of the series.

Only one species of *Coprophilus* has been recorded from North America, i. e., the European *C. striatulus* (Fab.), of which I have two males and four

females from Vienna. The much narrower *sexualis* is readily separated as follows:

Sides of head parallel behind the eyes; mentum and submentum coarsely and fairly densely punctate; disc of pronotum with a broad longitudinal groove from apex to basal two-thirds, and a shallow semi-circular depression on each side of middle at base; elytra strongly margined at sides, as seen from above; metatrochanters simple in male; aedeagus of male genitalia short, triangular, projecting upward between parameres at middle of their length.....*striatulus* Fab.

Sides of head convergent behind the eyes; mentum and submentum sparsely, finely punctate; disc of pronotum with a shallow median longitudinal groove in anterior third, and a small rounded depression on each side of it, these vaguely connected posteriorly to a larger rounded median depression which is followed by a median smooth raised area extending almost to base; sides of elytra rounded,marginal line weak, not visible from above; metatrochanters greatly elongated in male (Fig. 1); aedeagus tubular, as long as parameres, lying between them for its full length.....*sexualis* n. sp.

Dacnochilus fresnoensis n. sp.

Male: Length 4.6 mm.; width 1.1 mm. Body slender, moderately convex, sides almost parallel; integument polished, shining; long "tactile" setae present along sides of body and basal margin of head: Head and elytra pale yellow-brown. elytral suture tinged with piceous; pronotum pale yellow, abdomen slightly darker than elytra. Body beneath pale yellow-brown, abdomen a little darker; legs pale yellow, the tibiae darkest.

Head as wide as pronotum, sides divergent behind the eyes, posterior angles rounded, hind margin straight; labrum deeply incised at middle; punctation sparse and fine, each puncture bearing a seta. Antenna rather slender, gradually incrassate distally.

Pronotum trapezoidal, one-tenth wider than long, widest at anterior angles, the sides very slightly and gradually convergent towards base; anterior angles slightly rounded, the posterior broadly so; base evenly, feebly arcuate; punctation fine and sparse, limited almost entirely to a longitudinal series on each side of the middle, and an arcuate series midway between the former, and the lateral margins.

Elytra wider than pronotum (2.3 : 2), almost two-sevenths wider than long, sides feebly arcuate; punctation fine and sparse, limited almost entirely to a sutural and three discal longitudinal series, each puncture bearing a stiff seta. Abdomen at middle as wide as the elytra, slightly narrower basally; finely, sparsely punctate. Fifth apparent abdominal sternite unmodified (but slightly damaged in the type); sixth narrow, slightly flattened and polished medially but not at all impressed, and with a broad, shallow, semicircular apical emargination whose edge is finely bevelled.

Female: similar to the male; body a little larger.

Holotype: ♂, Fresno, California, June 5, 1931, (R. S. Wagner); in the California Academy of Sciences, San Francisco.

Allotype: ♀, Fresno, California, June 23, 1930, (R. S. Wagner).

D. fresnoensis is readily separated from *laetus* Leconte, of Louisiana and Texas, by its broader and shorter form, shape of its head and pronotum (see Figs. 2 and 3), and lack of the black basal area of the elytra.

TWO APPARENTLY NEW GEOMETRIDS FROM THE SOUTHWEST

BY JOHN L. SPERRY,
Riverside, California.

Dichorda cockerelli sp. nov.

Palpi ochreous brown; head, front and vertex white. Collar, tegulae, abdomen dorsally and all wings bright blue-green; underside of abdomen white; antennal shaft white, branches ochreous; legs white, flecked with brown, brown spots at the joints and at tips of tarsi; fore femora green. A tiny white dot dorsally on the second and third segments of the abdomen.

Primaries: costa white, dotted with brown, especially at the inception of the t. a. and t. p. lines. Lines narrow, cream colored, t. a. line starting one-third out on the costa extends straight to the inner margin which it reaches at less than one-third out; t. p. line leaves the costa at right angles at just over three-fourth out, curves slightly inward in the first mm. and goes straight to the inner margin which it reaches at two-thirds out. Externally on t. a. and internally on t. p. lines the green scales are thicker forming a very narrow darker border. No discal dots. Fringe concolorous, with a very narrow pale green line at base.

Secondaries: concolorous, t. a. line wanting; t. p. line straight from costa to inner margin three-fourths out. This line is not quite continuous with the corrosponding line of fore wing when the insect is expanded, leaving the costa just inside the continuation of the t. p. line of the fore wing. Fringe as in fore wing. No discal dots.

Beneath, paler blue-green. Lines showing through dimly; fringe concolorous. In two of my five specimens discal dots are indicated on the under side of the fore wings by tiny black specks, not apparent on hind wings. In the other three specimens all discal dots are wanting.

Female slightly larger than the male, maculation the same.

Expanse: male 21 to 24 mm.; female 26 mm.

Holotype, male, Mexican Wells, San Bernardino Co., California, July 12, 1938, Grace H. and John L. Sperry collectors; No. 4554 in the Canadian National Collection, Ottawa.

Allotype, female, Mexican Wells, California, July 7, 1937. G. H. and J. L. Sperry collectors, in the collection of Grace H. and John L. Sperry, Riverside, California.

Paratypes, 3 males, Mexican Wells, July 7, 1937; Split Rock Tank, Mojave Desert, California, May 21, 1938, G. H. & J. L. Sperry; and Ibanpah Mts., California, May 3, 1939, Dr. John A. Comstock, in the Exposition Park Museum, Los Angeles, California, and in the Sperry Collection.

This species differs from all other species of the genus *Dichorda* known to me in the absence of the discal dots on the upper surface of all wings. It seems nearest to *D. rectaria* Grote but differs in lacking discal dots, smaller size, and the bright robin's egg blue-green color of the wings. It also lacks the basal patch of dark scales present on the under side of the hind wings in *rectaria.*

It gives me pleasure to name this beautiful species in honor of Dr. T. D. A. Cockerell, whose many years of untiring effort have greatly enriched our scientific knowledge in many fields and have been an inspiration to all who know him.

Antepione comstocki sp. nov.

Male: front cinereous, vertex dark cream, about the color of manila paper; this is also the ground color of the wings. Palpi fuscous above, ochreous beneath, second joint moderate, rough scaled, third joint short, sparsely scaled. Thorax, tegulae, abdomen and wings concolorous. Antennae almost simple, very sparingly ciliate, light ochreous with fuscous mottling above, clear ochreous beneath.

Legs concolorous with wings, flecked with fuscous. Femora hairy; hind tibiae dilated, with strong hair pencil and all spurs, median pair long.

Primaries: costa very narrowly fuscous on basal third, rest to subapical patch concolorous with the wings, with from two to six tiny fuscous dots at irregular intervals. In three of my ten males, the basal third of the fore wings is made darker by a series of very fine, almost microscopic, reddish fuscous strigae, curving slightly outward across the wing from costa to inner margin. There is a slight diffuse sprinkling of fuscous and gray scales extending about 3 mm. toward the subapical spot from a point about 3 mm. in from the tornus on the inner margin, and a rather large, prominent triangular, subapical spot starting 1 mm. from the apex, with base extending about 3 mm. along costa, the triangle is nearly equilateral, the two sides often curved outwards. The center of the spot is of the ground color of the wing, the outer side heavily fuscous with scattered mottlings of gray, the inner side heavily gray with a narrow outer outer border of fuscous scales.

Secondaries: concolorous, lighter costally; in some specimens a faint extra discal line of fine strigae is indicated and there are sometimes a few dark strigae near the inner angle. Discal spots small, black, distinct on all wings. Fringe on all wings concolorous.

Beneath ochreous, subapical spot and spot near tornus less distinct than on upper surface. Costa of both fore and hind wings sparingly sprinkled with brownish scales.

Female: somewhat lighter than male; palpi rough scaled to tip. Fore wing as in male except that subapical spot is darker and there are two distinct fuscous spots about 5 mm. from the tornus of the fore wing close to the inner margin, the upper, about 2 mm. long, is kidney shaped, convex towards the base of the wing, the lower dot is 1 mm. long, angled outwardly from inner margin and just below the first dot. Remainder of the wings immaculate. Discal dots small on all wings. Beneath concolorous, maculation of the fore wings showing through. Expanse, male 34 to 39 mm.; female 38 to 42 mm.

Holotype, male, Baboquivari Mts., Arizona, April 26, 1938, Grace H. and John L. Sperry collectors; No. 4553 in the Canadian National Collection, Ottawa.

Allotype, female, same locality and collectors, April 27, 1938; in the Canadian National Collection, Ottawa.

Paratypes, 1 female, 11 males, same locality and collectors, Apr. 25 to Apr. 28, 1938, May 24, 1937; 1 male, same locality, Apr. 26, 1938, Dr. John A. Comstock; in the collections of Grace H. and John L. Sperry, the Canadian National Collection and the Exposition Park Museum, Los Angeles, California.

This species is probably nearest to *A. arcasaria* Walker. It differs from the eastern fuscous male in the lack of the t. p. and s. t. lines of the fore wings above, and the distinct, broken band on the fore wings beneath. The female differs in the color, which in this species, is manila, not yellow, and in the prominent kidney-shaped spots near the tornus on the fore wings which in *arcasaria* are rounded and diffuse. This species differs from other members of this genus in its lack of distinct t. a. or t. p. lines.

It gives me great pleasure to name this species in honor of my friend Dr. John A. Comstock, the perennial source of inspiration and enthusiasm to all lepidopterists of the Southwest.

I am endebted to my friend Dr. J. McDunnough of Ottawa for the generic references in the above descriptions.

NEW NORTH AMERICAN SPECIES OF HOMONEURA WULP. (DIPTERA, LAUXANIIDAE) *

BY G. E. SHEWELL
Ottawa, Ontario

Representatives of two new species of *Homoneura* from South Dakota were recently sent to me for description by Mr. George Steyskal of Detroit. Examination of unnamed material in the National Collection showed that these two species were also represented by Canadian material. The other species described here was received in a small miscellaneous shipment from Prof. E. H. Strickland of the University of Alberta. Since two of these three species possess unusual characters not previously associated with members of the genus, it seemed advisable to publish descriptions of them as soon as possible.

Most of the paratypes have been returned to Mr. Steyskal and some of them will be deposited in the collection of the South Dakota State College.

The key to which reference is made in the descriptions is the most recent one available for the genus in North America, that of Malloch and McAtee, 1924 (Proc. U. S. N. M., Vol. 65, Art. 12, p. 19).

Homoneura praeapicalis n. sp.

Runs to couplet 22 in Malloch's key. Yellow. Bristles and hairs black. Anteroventral surface of hind femur with a series of long bristles on apical half. Preapical hind tibial bristle very long. Length 3-3.5 mms.

Male. Arista short plumose. Distance between anterior and posterior frontal bristles equal to distance from anterior frontal to base of antenna. Cheek about a fourth eye height. Face retreating. Parafacial in profile linear centrally. Clypeus prominent. Palpi rather short and flattened. Thorax with four pairs of strong dorsocentrals. Six to eight pairs of acrosticals, including the strong prescutellar pair. A single row of hairs between acrosticals and dorsocentrals on each side. Abdomen short, not longer than thorax. Marginal bristles on last two (pregenital) segments very long. Lateral processes of second hypopygial segment evenly tapering and curved, the blunt tips pointing backward and having a minute downwardly directed spine on ventral side. Anal cerci rather long and slender as in *fraterna* Lw. Phallus keeled on posterior side, tip in ventral view rounded and rather spatulate, in profile sharply pointed with a slight forward curvature. Postero-ventral bristles on anterior femur very long, middle two quite half as long as femur. Hind femur with a row of five to seven long bristles on apical half of anteroventral surface. No long bristles on posterior surface of hind femur. Preapical bristle on hind tibia very long, three fourths as long as hind metatarsus. Hairs on anteroventral surface of hind tibia rather long but not erect. Wing veins yellow, crossveins darkened but no clouding on membrane.

Holotype—♂, Lethbridge, Alta., June 9th, 1926, J. E. Revell; No. 4901 in the Canadian National Collection, Ottawa.

Paratypes—4 ♂ ♂, Brookings, S. Dak., June 26th, 1936, H. C. Severin.

Homoneura armata n. sp.

Runs to couplet 4 in Malloch's key. Yellow. Bristles and hairs black. Wings spotted as in *fraterna* Lw. Three pairs of dorsocentrals. Hind femur without preapical anteroventral bristle. Male with large heavily spined processes beneath the abdomen. Length 3 mms.

Male. Arista black, short plumose. Face somewhat retreating. Clypeus not prominent. Cheek about a third eye height. Thorax with three pairs of dorsocentral bristles. Five or six uneven pairs of acrosticals, some of them hairlike. A more or less complete row of hairs between acrosticals and dorsocentrals on each side. Sixth abdominal tergite as long as fourth and fifth combined, not

*Contribution from the Division of Entomology (Systematic Entomology), Department of Agriculture, Ottawa.

nearly as wide as fifth, rounded posteriorly in both dorsal and lateral views. On ventral side of abdomen, arising at lateral edges of fifth tergite are two large ovate flattened processes armed on their rims with very heavy black spines. These processes are deflected posteriorly, their convex surfaces outward, and reach almost to base of hypopygium. First hypopygial segment in dorsal view about half basal width of sixth tergite. The two hypopygial segments combined have a subglobular outline. Hind femur without a preapical anteroventral bristle but with some rather long hairs in this area. A row of long soft erect hairs on posteroventral surface of hind femur, decreasing in length toward apex. Wing spotted as in *fraterna* Lw. with two spots on third vein in addition to those on crossveins and apices of longitudinal veins.

Female. Similar to male in thoracic chaetotaxy. Differs in having narrower cheeks, these being less than a fourth eye height. Clypeus rather prominent. Ventral surfaces of hind femur devoid of preapical bristles or long hairs. Ovipositor normal.

Holotype—♂, Edmonton, Alta., June 24th, 1937, E. H. Strickland; No. 4902 in the Canadian National Collection, Ottawa.

Allotype—♀, Same data as holotype. Taken on June 10th.

Homoneura severini n. sp.

Runs to couplets 24 and 32 in Malloch's key. Yellow. Bristles and hairs black. Differs from *bispina* Lw. and its allies in that the male has no processes on the last ventral abdominal segment. Number of dorsocentrals variable, three to five pairs decreasing in length anteriorly. Anteroventral surface of hind femur with preapical bristle. Crossveins of wing darkened. Length 3-4 mms.

Male. Arista plumose, black except at base which is yellowish. Face retreating, usually flat or slightly concave in profile, never noticeably convex. Clypeus at most slightly prominent. Cheek less than a third eye height. Thorax with three to five pairs of dorsocentrals decreasing in length anteriorly, always three well developed postsutural pairs, presutural pairs present or absent, if present close together and posterior pair not far from suture. Five to seven pairs of acrosticals, anterior three pairs and prescutellar pair much stronger than the others. The row of hairs between acrosticals and dorsocentrals on each side usually incomplete, sometimes absent. Abdomen as long as thorax posterior margin of last ventral segment straight, without pointed processes. Structure of hypopygial appendages rather variable. Lateral processes of second hypopygial segment arising from posterolateral corners, curving backward, variable in shape and length, the more or less enlarged tips flattened or clubbed, finely granulate, with hairs on ventral side. Two much smaller incurved processes sometimes present anterior to these (present in the type and one other specimen, absent in the rest.). Supplementary claspers arising from base of phallus variable in length and strength, angulate at middle or evenly curving backward, each with a short slender arm arising near base on inner side. Anal cerci short. Phallus robust, tip bilobate, posterior edge keeled on basal half, lateral and antero-lateral surfaces with lamellae. Hind femur with preapical anteroventral and posteroventral bristles, the latter sometimes hairlike or absent. Hind tibia without long erect hairs ventrally. Wings as in *bispina* Lw., crossveins darkened.

Female. Similar to male in head structure, thoracic chaetotaxy and wing venation. Abdomen evenly tapering. Ovipositor normal. Preapical posteroventral bristle absent from hind femur.

Holotype—♂, Cameron Bay, Great Bear Lake, N. W. T., July 22nd, 1937, T. N. Freeman; No. 4903 in the Canadian National Collection, Ottawa.

Allotype—♀. Taken on July 12th. Data otherwise same as for holotype.

Paratypes—1 ♂, 2 ♀♀, Fairmont, B. C., July 28th, 1926, A. A. Dennys; 1 ♂, Transcona, Man., July 26th, 1927, G. S. Brooks; 10 ♂♂, 4 ♀♀, from S.

Dakota, Yankton, June 25th, 1935, June 21st, 1924; Elk Point, June 19th, 20th. 1924, June 12th, 1925; Pineridge, July 8th, 1924; Newell, July 25th, 1923; Brookings, June 12th, 1923, August 3rd, 1928 (Riley); Lake Andes, June 30th, 1924. All but one of the South Dakota specimens were taken by Dr. H. C. Severin of the South Dakota State College, for whom this species is named.

A NEW COENONYMPHA RACE FROM NORTHEASTERN NEW BRUNSWICK

BY J. McDUNNOUGH

Ottawa, Ont.

While engaged on an Insect Faunal Survey with Mr. W. J. Brown in the northeastern section of New Brunswick, we ran across a very interesting race of *Coenonympha inornata* on the salt marshes a few miles north of Bathurst. The butterflies were emerging in large numbers during the first week of August, a very late date for Coenonymphas, and were very definitely restricted to the salt meadows or marshes which lie just back of the coast in this region. I describe this race as follows:

Coenonympha inornata nipisiquit var. nov.

Male. Characterized, as compared with typical *inornata* from the Quebec Laurentians and northern Ontario, by the deep brown color of the upper side shaded with smoky brown broadly along the outer margin of primaries and on nearly the whole of secondaries. The fringes are deep smoky, paling on the secondaries to gray below the apex of wing. Beneath, the primaries are deep brown shaded with greenish gray apically and narrowly along costa and down the outer margin toward anal angle; the irregular creamy oblique band is prominent and an apical ocellus may or may not be present; in the holo- and allotypes it is present, consisting of a circular black spot ringed with pale ochreous and with a central white dot. The basal portion of secondaries within the irregular pale band is shaded with brown and appears much deeper in color than in the typical form; the marginal area is suffused with greenish gray and shows traces (at times quite distinct) of a diffuse brown marginal band; the pale median banding is quite prominent and much as in *inornata*, varying considerably in individuals.

Female. Deeper ochre-brown in color than *inornata* and almost the same color as rather pale males of the typical form. Maculation otherwise as in male. Expanse 30 mm.

Holotype—♂, Bathurst, N. B., Aug. 6, 1939, (J. McDunnough); No. 4967 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—100 ♂, 50 ♀, same data, Aug. 5-8, collected by W. J. Brown and J. McDunnough.

This race is almost as dark as *mcisaaci* dos P. from Newfoundland, especially in somewhat worn males which appear quite black on the wing; it is, however, much larger and with better developed pale banding on the underside. In *mcisaaci*, furthermore, the apical ocellus appears to be wanting; in the New Brunswick race it is present in at least one-third of the males and practically all of the females captured and a certain few, especially females, show it also on the upper side as a small circular black spot.

A NOTE ON PARASITISM OF THE LEAF MINER, AGROMYZA MELAMPYGA LOEW.

BY H. R. BOYCE,

Dominion Parasite Laboratory, Belleville, Ontario

On July 14, 1937, an infestation of *Philadelphus* (Mock Orange or Syringa) by a leaf miner was observed on the grounds of the Dominion Parasite Laboratory, Belleville, Ont. A collection of 20 infested leaves made on that date produced 12 adults of the leaf miner *Agromyza melampyga* Loew., and four adults of a Chalcid parasite, *Closterocerus tricinctus* Ashm. between July 21 and July 28. Parasitism in this case, of 25 per cent, was due to one species of parasite only.

A second collection of 50 leaves was secured on July 26, 1937, and placed on moist blotting paper in a glass jar. A total of 17 *Agromyza melampyga* Loew. and 13 parasites emerged from this material between August 2 and August 6. The parasitism at this later date was due to the following species: *Pnigalii maculipes* Cwfd. (1 individual), *Pnigalii felti* Cwfd. (1), *Pnigalii* sp. (2), *Halticoptera aenea,* Walk. (3), *Diaulences pulchryses* Cwfd. (1), and *Closterocerus tric-*

Ottawa through whom the determination of host and parasites was obtained.

My thanks are extended to officers of the Division of Entomology at *inctus* Ashm. (3).

BOOK NOTICES

The World of Insects. By Carl D. Duncan and Gayle Pickwell. McGraw-Hill Book Co., New York, N. Y., 409 pp., 194 illustrations, $3.50.

This volume, which is in keeping with the McGraw-Hill high standard of publication, is a non-technical, general survey of the field of insects. Such insect peculiarities as their structure, metamorphoses, food, feeding habits and food-getting devices, sounds, reproduction, breathing, movement, protection, fitness, social life, and value are amply discussed in a fascinating manner. With very few exceptions the illustrations are reproductions of original drawings or photographs.

In approximately fifty pages the orders of insects are discussed and quite adequately illustrated for a book of this character. The inclusion of a tabular summary of the main features of the orders has greatly increased the value of this chapter.

Injurious insects, and how they came to be pests, form a suitable introduction to the section on insect control. This section, although non-technical and omitting specific directions, is a good summary of control methods. It embraces the theoretical basis of control: chemical, cultural, physical, or mechanical, biological and legal control.

This type of book would hardly be complete without chapters on where to look for insects, rearing and collecting and preserving insects. These topics form the closing chapters and are followed by a three page list of selected references with the fields to which they apply and an index.

As a non-technical book on insects, this volume has much to commend it to the amateur entomologist and the naturalist. It should be particularly valuable to public and high school teachers connected with nature study or agriculture.

R. H. Ozburn.

The North American Bees of the genus Osmia. By Grace A. Sandhouse. Memoir of the Entomological Society of Washington, Number I, Washington, D. C., August 15, 1939, p. 167. Price $3.00; bound. For sale by the Corresponding Secretary, Entomological Society of Washington, care of Bureau of Entomology and Plant Quarantine, Washington, D. C.

In issuing this volume the Entomological Society of Washington has embarked upon a program designed to present to the entomological world a series of memoirs dealing with various phases of entomology. Memoir Number I fittingly marks the 500th meeting of the Society which commenced its existence 55 years ago. The publication of this first memoir was inspired and made possible by funds bequeathed the Society by two of its early members, the late Frederick Knab and the late Dr. E. A. Schwarz. It is the intention of the Society to issue from time to time further memoirs of the same general nature as the above, provided the present volume meets with the approval and sale normally to be expected of a work of this kind.

It is of importance to American entomologists that another vehicle has been established which will provide for the publication of rather lengthy entomological papers, and it is hoped that this new series of memoirs will receive enthusiastic support. The standard of publication set by the first memoir is high. The volume is compact, well bound and printed on a good stock.

Miss Sandhouse's paper consists of a revision of the Nearctic bees of the genus *Osmia* in which, for the first time, an attempt has been made to assign all of the species to subgenera on the basis of structural characters. The general structures are described for the genus and the combination of characters distinctive for each subgenus appear under the subgeneric headings. A correlation of the subgenera of the Nearctic region with those of the Palearctic region has made necessary certain nomenclatorial changes which are shown.

Keys to the genera of the subfamily Osmiinae as well as the subgenera of *Osmia* which occur in the Nearctic region are given and also keys to the Nearctic species of each subgenus.

All of the species of which representatives were seen are redescribed. The genitalia and eigth abdominal sternite of each species are figured as are also the mandibles, legs, apical abdominal tergites and some additional sternites of those species in which these structures differ most.

As a result of the examination of the types of most of the species, considerable new synonymy is indicated. Of approximately two hundred and eighty names which have been proposed for species in the Nearctic region, thirty are transferred to other genera and one hundred and twenty become synonyms. Nineteen new species are described. A summary of the distribution is given for each species G. S. Walley.

Guelph Printing Service

Mailed Saturday, December 30th, 1939.

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